

Using wheat as an energy source for beef cattle

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Wheat, along with corn and barley, is one of the three major feed grains used in North America. Most of the feed-class wheat is fed to poultry and swine. Beef producers are reluctant to use large quantities of wheat in diets of feedlot cattle because wheat ferments considerably more rapidly in the rumen than corn or barley and increases the risk of ruminal acidosis, which can compromise the health, wellbeing, and productivity of cattle.

In a study published in the November 2014 issue of the *Journal of Animal Science* ("[Impact of hard vs. soft wheat and monensin level on rumen acidosis in feedlot heifers](#)") researchers in Canada conducted a metabolism trial using fistulated beef heifers to determine whether different types of [wheat grain](#) could be fed as an alternative energy source.

Dr. WenZhu Yang, a research scientist at the Agriculture and Agri-Food Canada—Lethbridge Research Centre, and colleagues determined whether soft [wheat](#) versus hard wheat might ferment at different rates and, therefore, have different values for feeding beef cattle. They also evaluated the effect of feeding more monensin (an ionophore used to improve feed efficiency and prevent or control coccidiosis) than the current practice, Yang indicated.

"The evaluation of these dietary factors was investigated by measuring ruminal pH and rumen fermentation, microbial protein synthesis in the rumen, and the site and extent of nutrient digestion by finishing beef

heifers," Yang said.

The researchers found that wheat can be fed at more than 50 percent of dietary dry matter without adversely impacting the feeding value of the wheat grain, Yang said. Beef producers need to pay attention to grain processing to ensure that ruminal starch digestion is not too fast, Yang said, which could result in subclinical ruminal acidosis or adversely impact animal health and growth performance.

The researchers also found that increasing monensin supplementation decreased feed consumption and increased propionate in the ruminal fermentation pattern, Yang said. Greater monensin feeding suggests a potential for improving feed efficiency.

"However, other factors such as proper feed adaptation, bunk management, and increasing the level of silage in the diet may also be effective management strategies," Yang said.

Yang said he and his colleagues plan to further their research by determining the optimum processing of wheat grain. They are also developing near-infrared spectroscopy calibrations that will take composition and digestion rate into account.

Provided by American Society of Animal Science

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